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10/797,916	03/10/2004	Rajan Bhandari	R. Bhandari 2-15-4 (LCNT/	3343
46363	7590	04/13/2010	EXAMINER	
WALL & TONG, LLP/ ALCATEL-LUCENT USA INC. 595 SHREWSBURY AVENUE SHREWSBURY, NJ 07702			WU, JIANYE	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/797,916	<b>Applicant(s)</b> BHANDARI ET AL.	
	<b>Examiner</b> JIANYE WU	<b>Art Unit</b> 2462	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 3/12/10.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/12/2010 has been entered.

### ***Response to Arguments***

2. Applicant's arguments filed on 3/12/2010 have been fully considered, they are not persuasive. Claims 1-21 are pending, All Independent claims (1, 12 and 19-20) have been significantly amended.

3. For claim 1, Applicant argues:

a) "the primary reference does not appear to teach at least the following feature recited in the claims: "sorting data packets received during a predetermined time period into group according to which communication device the received data packets are intended to be transmitted toward"(emphasis added)" (last paragraph, page 8);

b) "Examiner fails to provide a proper reference for teaching: sorting data packets received during a predetermined time period" (1<sup>st</sup> paragraph from bottom, page 9);

In response, Examiner respectfully disagrees:

a) Fisher teaches the limitation "sorting data packets during a predetermined time period into groups according to which communications

device of said network the received data packets are intended to be transmitted toward” when it discloses the receiver receives a plurality of data packets and sorts them according to the sequence number in order to form an AFAF frame to be transmitted to the transmitter as shown in FIG. 3 and [0067]. Note that AFAF refers to “aggregated fragment acknowledgement frame (AFAF)” ([0006]) which aggregates fragment packets to form a frame which is received in a predetermined time period (“An AFAF is generated that is appropriate to the particular instance”, [0036]; wherein the particular instance is a predetermined time period).

b) Fisher implicitly discloses the cited limitation as explained above in a).

For **claim 21**, Applicant argues: “Because the rejection under 35 U.S.C. §103 given Fischer in view of Dapper has been overcome, as described hereinabove, and there is no argument put forth by the Office Action that Zehavi supplies that which is missing from Fischer and Dapper to render the independent claims unpatentable, this ground of rejection cannot be maintained” (2<sup>nd</sup> paragraph from bottom, page 10).

In response, Examiner respectfully disagrees: the argument is not persuasive because the rejection to the parent claim 1 has not been overcome as described above.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer (US 20030214930 A1) in view of Dapper et al (US 20020105950 A1, hereinafter Dapper).

For **claim 1**, Fischer discloses a method for combining data packets intended for transmission toward a common communications device (Communication System 300 of FIG. 3A), comprising:

sorting data packets received during a predetermined time period into groups (suggested by "The AFAF includes, among other things, a stream identifier (stream ID), a sequence number (SEQ), and ..." of [0067] in view of FIG. 6, where data packets are sorted with the mechanism of AFAF using the **sequence number** with the stream identifier identifies the destination communications device; Note that AFAF stands for "aggregated fragment acknowledgement frame (AFAF)" ([0006] and building a AFAF needs sorting before the aggregation) which aggregates received fragment packets which are received in a predetermined time period) according to which communications device of said network the received data packets are intended to be transmitted toward (FIG. 3A in view of [0048] shows received packets are formed to a AFAF to be transmitted; and "An AFAF is generated that is appropriate to the particular instance", [0036]; wherein the particular instance is a predetermined time period); respectively time aligning the data packets in each of the groups associated with a common

communication device (all the data in a AFAP frame has the same destination, in other word, they are associated with a communication device).

Fischer does not explicitly disclose orthogonally encode the sorted time aligned data packets within each of the groups associated with a common communication device prior to transmission toward the common communication device.

However, orthogonally encoding the data packet is well known techniques in the art (as admitted by Applicant in Specification, page 8, line 4-32). For example, Dapper teaches using OFDM to encode the packet (“use OFDM (orthogonal frequency division multiplexing)”, [0015]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to apply orthogonally encoding technique taught by Dapper to the communication device disclosed by Fischer in order to achieve more efficiently use network resources and to provide “real time” results ([0015] of Dapper).

For **claim 12**, Fischer discloses an apparatus for combining data packets intended for transmission toward a common communications device (Communication System 300 of FIG. 3A) in a communications network, comprising:

an addressing device for defining a storage location (processor 520 of FIG. 5, which decides the address of a storage location) for said received data packets according to for which communications device of said network the received data packets are intended to be transmitted toward (“uniquely identified by the combination of the destination MAC address”, [0076]);

a memory (Rx FIFO of FIG. 5) for storing said received data packets in different sections according to the storage location defined by said addressing device, wherein the data packets stored within each of said different sections are timed aligned ("the sequence number", [0076] indicates timed aligned data packet); and

Fischer is silent on a combiner for orthogonally combining the respective time aligned data packets in each of said different sections of said memory associated with a common communication device prior to transmission toward the common communication device and a timer for defining a time period for receiving data packets;

In the same field of endeavor, Dapper discloses an OFDM encoder ("signal processing in modems which use OFDM (orthogonal frequency division multiplexing)", [0015]), and a timer for defining a time period for receiving data packets ("an error timer" for "received signal failure", [0413], in view of FIG. 41-43).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to apply orthogonally encoding technique taught by Dapper to the communication device disclosed by Fischer in order to achieve more efficiently use network resources and to provide "real time" results ([0015] of Dapper).

As to **claims 2**, Fischer in view of Dapper discloses the method of claim 1, Fischer further discloses said received data packets are sorted using a MAC header of each of said received data packets ("uniquely identified by the combination of the destination MAC address", [0076]).

As to **claims 3 and 13**, Fischer in view of Dapper discloses the method of claim 1 and 12, Fischer further discloses said received data packets are stored in different

sections of a memory according to for which communications device of said network the received data packets are intended (received packets are stored in different Rx FIFO of Fig. 5).

As to **claims 4**, Fischer in view of Dapper discloses the method of claim 1, Fischer further discloses comprising sorting for transmission said orthogonally combined data packets in different sections of a memory according to for which communications device said combined data packets are intended (packets to be transmitted are stored in different Tx FIFO of Fig. 5).

As to **claims 5**, Fischer in view of Dapper discloses the method of claim 4, Fischer further discloses said orthogonally combined data packets are stored in different sections of a memory according to which communications device of said network the combined data packets are to be transmitted (packets to be transmitted are stored in different Tx FIFO of Fig. 5).

As to **claims 6**, Fischer in view of Dapper discloses the method of claim 1, Fischer further discloses said orthogonally combined data packets are transmitted to an intended receiver using a single MAC header (MAC Service Data Unit of FIG. 6, which has a single MAC header).

As to **claims 7**, Fischer in view of Dapper discloses the method of claim 1, Fischer further discloses a respective bandwidth required to transmit each group of said orthogonally combined data packets is substantially the same as a bandwidth required to transmit a largest data packet in each of said groups (FIG. 5, where different group Radio Circuitry 510 and 10/100/1G Ethernet in view of Fig. 6 on data transmission;



notice that Specification does not provide any details on “substantially the same” on bandwidth requirement, and there are no restrictions on the bandwidth requirements either on said orthogonally combined data packets or on the largest data packet, therefore, the requirements on them are substantially the same).

As to **claims 8**, Fischer in view of Dapper discloses the method of claim 1, Fischer is silent on said predetermined time period is substantially greater than or equal to a total time latency for receiving data packets intended for a common communications device of said network.

However, one skilled in the art would be motivated to select said predetermined time period needs to be substantially greater than or equal to a total time latency for receiving data packets for a common communications device in order to the send them to the device at once.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to select said predetermined time period needs to be substantially greater than or equal to total time latency for receiving data packets for a common communications device for the benefit of efficiency.

As to **claims 9**, Fischer in view of Dapper discloses the method of claim 8, Fischer further discloses data packets in said network are communicated according to a global timing schedule and said time latency is due to differences in the latencies of transmission media of the communications devices of said network (FIG. 5, where different interfaces such as Radio Circuitry 510 or 10/100/1G Ethernet have different latencies).

As to **claims 10**, Fischer in view of Dapper discloses the method of claim 1, Fischer is silent on only data packets having specific MAC headers are orthogonally combined.

However, one skilled in the art would be motivated to apply orthogonal coding to data packets only to data packets having specific MAC headers because of the design choice, such as the data packets having specific MAC header go to a specific device.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to select only data packets having specific MAC headers are orthogonally combined in order to meet desired design specification.

As to **claims 11**, Fischer in view of Dapper discloses the method of claim 1, Fischer further discloses data packets not orthogonally combined are communicated in said network according to conventional Ethernet protocols (10/100/1G Ethernet of FIG. 5).

As to **claims 14**, Fischer in view of Dapper discloses the apparatus of claim 12, Fischer further discloses a bit scaler for defining the number of bits to be combined by said combiner (Bus System Interface of FIG. 5 is a bit scaler that interface that does bits conversion between transmission and receiving, as shown in FIG. 4 of Specification).

As to **claims 15**, Fischer in view of Dapper discloses the apparatus of claim 12, Fischer further discloses said addressing device stores information regarding the MAC header of which data packets are to be orthogonally combined (Receiver 620 stores MAC header as shown in FIG. 6 in view of data packets are to be orthogonally combined by Zehavi in claim 12).

As to **claims 16**, Fischer in view of Dapper discloses the apparatus of claim 12, Fischer further discloses a Receive MAC for receiving data packets and a Transmit MAC for transmitting the respective orthogonally combined data packets (as explained in claim 12) to an intended communications device (as shown in FIG. 6, where both Receive MAC and Transmit MAC are disclosed in view of data packets are to be orthogonally combined by Zehavi in claim 12).

As to **claims 17**, Fischer in view of Dapper discloses the apparatus of claim 12, Fischer further discloses said apparatus is implemented in an interconnect switch of said network (system 100 of Fig. 1, with WLAN 110 having switches or routers).

As to **claims 18**, Fischer in view of Dapper discloses the apparatus of claim 12, Fischer further discloses said apparatus is implemented in at least one of the communications devices of said network (FIG 2, where devices 201, 202, 203 and 221 are all devices according to claim 12 in view of FIG. 2-6).

For **claim 19**, Fischer discloses a packet network where data packets intended for transmission toward a common communications device are combined (the packet data network shown in FIG. 1), comprising:

- a plurality of communications devices (such as devices 101-106 in FIG. 1); and
- a switch for interconnecting said communications devices (one of routers/switches in WLAN 210, FIG. 1, such as one of “non-blocking quarter-DSOs” with “cross-connect capability”, [0196]), wherein said interconnection switch includes:
  - an addressing device for defining a storage location for said received data packets (processor 520 of FIG. 5, which decides the address of a storage location)

according to for which communications device of said network the received data packets are intended to be transmitted toward ("uniquely identified by the combination of the destination MAC address", [0076]);

a memory for storing said received data packets in different sections according to the storage location defined by said addressing device, wherein the data packets stored within each of said different sections associated with a common communication device are respectively time aligned (Tx/Rx FIFOs of FIG. 5 used to store received data packets of different groups).

Fischer does not explicitly disclose a combiner (encoder) for orthogonally combining the respective time aligned data packets in each of said different sections of said memory associated with a common communication device prior to transmission toward the common communication device and a timer for defining a time period for receiving data packets.

In the same field of endeavor, Dapper discloses an OFDM encoder ("signal processing in modems which use OFDM (orthogonal frequency division multiplexing)", [0015]), and a timer for defining a time period for receiving data packets ("an error timer" for "received signal failure", [0413], in view of FIG. 41-43)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to apply the teaching of Dapper to the system disclosed by Fischer to achieve the required features.

For **claim 20**, Fischer discloses a packet network where data packets intended for transmission toward a common communications device are combined (the packet network shown in FIG. 1), comprising:

a non-blocking switch for interconnecting communications devices of said network (one of “non-blocking quarter-DSOs” with “cross-connect capability”, [0196]);  
and

a plurality of communications devices, wherein at least one of said communications devices includes:

an addressing device for defining a storage location for said received data packets (processor 520 of FIG. 5, which decides the address of a storage location) according to for which communications device of said network the received data packets are intended to be transmitted toward (“uniquely identified by the combination of the destination MAC address”, [0076]);

a memory for storing said received data packets in different sections according to the storage location defined by said addressing device, wherein the data packets stored within each of said different sections associated with a common communication device are respectively time aligned (Tx/Rx FIFOs of FIG. 5 used to store the received data packets of different groups).

Fischer does not explicitly disclose a combiner (encoder) for orthogonally combining the respective time aligned data packets in each of said different sections of said memory associated with a common communication device prior to transmission

toward the common communication device and a timer for defining a time period for receiving data packets.

In the same field of endeavor, Dapper discloses an OFDM encoder (“signal processing in modems which use OFDM (orthogonal frequency division multiplexing)”, [0015]), and a timer for defining a time period for receiving data packets (“an error timer” for “received signal failure”, [0413], in view of FIG. 41-43)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to apply the teaching of Dapper to the system disclosed by Fischer to achieve the required features.

5. **Claim 21** is rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer in view of Dapper, further in view of Zehavi (US 5757767).

As to **claim 21**, Fischer in view of Dapper claim 1, but is silent on said predetermined time period is determined using a **global timing schedule** according to which data packets are transmitted within said communications network and a total time latency for receiving data packets intended for a communications device of said communications network.

However, using a global timing schedule for a communication system is well known in the art. For example, Zehavi teaches using Universal Coordinated Time which is a global timing schedule to synchronize devices and gateways of the network (“base stations or gateways to synchronize to Universal Coordinated Time (UTC)”, col. 8, line 32-44).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use a global timing schedule for the communications network to ensure the synchronization of all the devices in the network.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jianye Wu whose telephone number is (571)270-1665. The examiner can normally be reached on Monday to Thursday, 8am to 7pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571)272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner, Art Unit 2462

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